POINTS TO CONSIDER

NON-TECHNICAL ABSTRACT

Stem cell transplantation can effectively treat a wide variety of malignant diseases, but most people do not have donors who are a genetic match. A mismatched donor can be used if their primitive stem cells are highly purified before they are transplanted, but people who receive these grafts do not develop a good immune system and usually die of infection. We plan to give back purified T lymphocytes to these patients. T lymphocytes are cells in blood that are important for defence against infection. However, they can also attack the new recipient and cause a fatal Graft versus Host Disease (GvHD). We plan to remove the component of the cells that we believe causes GVHD, and give the treated cells back in increasing numbers to the transplant recipients. However, to discover how effective this approach will be, we need to be able to track the cells we give back. This will allow us to see how long they last, whether they work and whether they can also still cause GvHD. To do this we will genetically mark the T lymphocytes using a mouse-derived retrovirus. We have successfully and safely used the same approach to track a related type of T lymphocyte given back to other patients who received stem cell grafts.